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According to a report produced by Navigant Consulting for the California Energy Commission (CEC), Alpha Omega's system, which was installed in 2016, generates nearly 100 percent of its electricity, approximately 1 million kWh annually with five solar photovoltaic arrays mounted above its parking lots. Its batteries provide enough electricity to power essential operations for three days.

The system cost nearly \$2 million, but through creative financing, leasing and tax credits the winery wasn't required to spend more than \$500,000. The system reportedly reduced the winery's carbon footprint by 100 percent.

technology & business

Microgrids Seen as Part of Solution to California Energy Crisis

Cyril Penn

THOUGH DOMAINE CARNEROS' founding winemaker and chief executive officer Eileen Crane passed the baton to new CEO Remi Cohen in 2019 after 33 years at the helm, her legacy continued. In addition to much more, Crane passed on a tradition of nuance in creating proprietary blends and a commitment to sustainability.

Owned by the French Champagne house Taittinger, Domaine Carneros was an early adopter of sustainability—in 2003 Crane oversaw the installation of its first solar power system. Now, in 2021, the winery is planning an upgrade to a more powerful system with battery storage. But what makes this system unique is the inclusion of a control system designed to “island” the entire facility, taking it off the electric grid in the event of a power outage.

“As estate vineyard owners, we realize the responsibility of operating in an environmentally conscientious fashion,” Cohen says. “This installation is the next step in a 33-year history of stewardship and leadership in sustainability initiatives.”

High winds, wildfires, and safety shutoffs (i.e. Public Safety Power Outages), are an all too frequent occurrence in Northern California's wine country, where the winery is situated. The wildfires that afflicted the Napa/Sonoma area in 2019 were followed by additional wildfires and power outages just 10 months later. At Domaine Carneros, the combination of solar and storage that can operate independently from the grid will allow the winery to limit the use of diesel used for backup generators in future outages, running for three to seven days in isolation.

The system installed in 2003 supplied 35 to 40 percent of the winery's electric needs while the new one, scheduled for completion by EDF Renewables over the summer, will provide close to 85 percent. The 250-kilowatt (kW) solar PV system will combine carport and ground-mount installations with a 280 kW/ 540-kilowatt hour (kWh) onsite behind-the-meter (BTM) battery storage solution with integrated smart electrical infrastructure controls. The cost is close to \$2 million but there are incentives, and the system is expected to pay for itself in seven to 10 years.

The solar portion of the project will reduce the facility's utility provider energy cost, while the battery system optimizes operations by allowing the facility to draw from the stored energy during the utility's expensive, evening on-peak period. The storage system will reduce costs by discharging the battery to mitigate spikes in usage, lowering demand charges. It is also projected to offset 624 metric tons of carbon each year.



**DOMAINE CARNEROS.**
By
TAITTINGER

Self-Contained Systems

Microgrids that can operate while connected to the electrical grid to receive energy and that can be separated from the grid, thereby operating self-sufficiently, are not only seen as a clean energy solution but also as having a potential role in bolstering overall system reliability during periods of heavy demand.

As the price of solar panels drops, more wineries are installing solar power systems. The 2019 *Wine Business Monthly* Facilities Survey indicated 30 percent of wineries had adopted solar panels. Winery equipment survey results in this issue (see page 36) indicate more wineries are purchasing diesel generators to use during shutoffs. Most solar systems don't include batteries or control systems to take them offline, though.

There are roughly two dozen so-called microgrid systems deployed in California; in most instances they are installed at hospitals and municipalities where reliability is a priority. Domaine Carneros is the fourth California winery to install one. Other wineries with microgrid systems include: Alpha Omega in St. Helena, Stone Edge Farm Estate Vineyards & Winery in Sonoma, and the Robert Mondavi Institute for Wine and Food Science Winery at UC Davis.

Emerging State Mandated Program

In September 2018, California enacted a new law, Senate Bill (SB) 1339, requiring the California Public Utilities Commission (CPUC) to develop regulations to facilitate commercializing microgrids for customers of large electric utilities. That's because microgrids are seen as a tool in reducing emissions and to dovetail with California's goal of eventually transitioning to 100 percent distributed energy resources in parallel with the larger

CPUC, along with the State Energy Resources Development Commission and California's Independent Energy Advisory Board, is expected to take action by Dec. 1, 2020, and in December 2020, the CPUC is expected to make a proposed decision that aims to stimulate development of microgrids. Actual implementation of the proposed regulations consider utility concerns about how costs are allocated. There are also policy disagreements about whether microgrids should be deployed at utility substations or as distributed energy resources. Another issue involves compensation when microgrids generate electricity that cannot be stored that flows back to the grid. Residential customers with rooftop solar systems get credit for excess electricity generated but large customers are not. The CPUC is working with a framework that limits cross-subsidies and

has disbursed \$84.5 million to build 20 new microgrids. Projects that are funded in part by the Electric Program Charge (EPC) bill surcharge paid by all California customers. The CPUC has also implemented a 30 percent solar investment tax credit for self-generation incentive program, a California program that has provided about \$100,000 in incentives. The program provides rebates for qualifying distributed energy resources on the customer's side of the meter.

Domaine Carneros system is designed so that when more power is needed, the system can be upgraded to operate as a generator.

Domaine Carneros with security of energy supply due to increased wildfire risk,” Raphael Cohen said. “This is a strategy at EDF Renewables said. California's rolling blackouts are emblematic of the challenges occurring in the wake of extreme weather events. The next step in solar and storage solutions is supporting businesses during both grid outages.” **WBM**